ENERGY STAR® QUALIFIED ROOM AIR CONDITIONERS

Consumer Benefits

- ENERGY STAR qualified room air conditioners (RACs) are at least 10% more efficient than the minimum federal energy efficiency standard.
- ENERGY STAR qualified RACs often include timers for better temperature control. Other premium features such as digital display panels and remote controls are also typical features of an ENERGY STAR qualified model.

Table 1. ENERGY STAR Criteria	
	Current Criteria
ENERGY STAR	At least 10% more energy efficient than the minimum federal government standards.

Table 2. Annual ENERGY STAR Savings Per Unit						
	ENERGY STAR vs. non-qualified			ENERGY STAR vs. 10-year old		
	ENERGY STAR	New Non-qualified	**Annual Savings**	ENERGY STAR	10-year old	**Annual Savings**
Energy Use (kWh/year)	676	752	**76**	676	943	**267**
Energy Bill ($/year)[1]	$63	$70	**$7**	$63	$88	**$25**

Utility Cost Effectiveness Data

- Average product life expectancy: 10 years[2]
- Typical ENERGY STAR price premium: $30 – $50
- Time to recover price premium: 4 - 7 years
- Approximate price range for ENERGY STAR qualified RAC: $130 – $850[3]
- Approximate price range for non-qualified RAC: $80 – $1,000[4]
- 2005 national RAC shipments: 8,353,000[5]
- Average saturation of RACs in residential housing: 30%[6]

ENERGY STAR Market Penetration[7]

Table 3. ENERGY STAR RAC Market Share by Quarter		
	Q2	**Q3**
2000	20.0%	17.6%
2001	10.8%	15.9%
2002	31.7%	43.2%
2003	27.1%	31.6%
2004	37.0%	34.6%
2005	N/A	N/A
Q1 and Q4 not reported due to low sales volumes.		

Table 4. ENERGY STAR 2004 RAC Market Share by Census Division	
Census Division	**2004 Market Share**
East North Central	32.3%
East South Central	26.7%
Middle Atlantic	43.7%
Mountain	34.9%
New England	55.3%
Pacific	37.1%
South Atlantic	26.7%
West North Central	38.0%
West South Central	30.2%

[1] $.093/kWh is used to estimate dollar amounts (Source: U.S. Department of Energy, 2005).
[2] 28th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2005.
[3] National retailer Web sites.
[4] Ibid.
[5] D&R International projections using statistics from *Appliance Magazine*, 28th Annual Portrait of the U.S. Appliance Industry (September 2005) and U.S. Appliance Industry Shipment Statistics (November 2005).
[6] 28th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2005.
[7] D&R International. Market penetration data from 2005 is not available.

ENERGY STAR Update

Reverse Cycle RACs (Heat Pump RACs)

ENERGY STAR criteria for room air conditioners recently expanded to include units with reverse-cycle heating. As with the other product categories, reverse-cycle units must be at least 10% more efficient than the federal standard for ENERGY STAR qualification. Models with electric resistance heat are still excluded from the program.

Packaged Terminal Equipment (PTACs/PTHPs)

DOE is currently analyzing the potential energy savings of expanding the ENERGY STAR room air conditioner category to include packaged terminal equipment.

Market Snapshot

- RAC sales vary widely year-to-year and region-to-region, based primarily on weather patterns. 2004 sales were much lower than 2003 sales due to a cooler summer. RAC sales are also tied more closely to the economic health of the country than other major appliances.
- RAC saturation is highest in climates where central air conditioning is less common, such as the Northeast and the upper Midwest (see Table 6).
- National retailers (i.e., Wal-mart, Lowe's and The Home Depot) occasionally use the smaller capacity, low-priced RAC models as a means to drive foot traffic and clear out inventory to make room for holiday season inventory. Independent retailers have responded to this by stocking more specialized RAC models with more features and larger capacities.[8]
- Retail and wholesale pricing increased moderately in 2005 as a result of a more expensive power cord that manufacturers are required to use by federal mandate.[9] Manufacturers also face rising raw materials costs (i.e., copper, aluminum and steel) and a shortage of compressors.
- Consumers evaluate room air conditioners based on price, capacity, energy efficiency, noise (i.e., quiet operation), comfort, ease of use, electronic controls, timers (e.g., sleep-timers), remote controls, heat-cool options and appearance.
- The RAC market is increasingly shifting towards Asian producers. The largest Asian manufacturers are LG Electronics (Korea), Haier (China) and Samsung (Korea).
- The Energy Policy Act of 2005 contains a provision allocating $50 million during FY2006-2010 for State Energy Offices to administer appliance rebate programs. It's presumed that these appliance rebate programs may include room air conditioners.

[8] Alan Wolf, "Cool Sales for Room Air," *TWICE*, August 6, 2004

[9] Gerry Beatty, "Air on the Side of Caution," *Home Furnishing News*, October 18, 2004.

Industry Data

Table 5. RAC Manufacturer Market Share[10]			
Manufacturer	**2004**	**2003**	**2002**
LG Electronics	29%	32%	28%
Fedders	22%	21%	22%
Electrolux (Frigidaire)	11%	13%	11%
Whirlpool	11%	9%	11%
Haier	6%	9%	12%
Samsung	6%	5%	2%
Sharp	4%	3%	4%
Goodman/Amana	--	3%	3%
Matsushita	2%	3%	2%
Friedrich	2%	--	--
Other	9%	6%	5%

Table 6. RAC Saturation by Census Division[11]	
Census Division	**Saturation**
East North Central	22%
East South Central	21%
Middle Atlantic	41%
Mountain	9%
New England	44%
Pacific	11%
South Atlantic	15%
West North Central	19%
West South Central	19%

[10] 28th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2005.
[11] Residential Energy Consumption Survey (RECS), *U.S. Department of Energy*, 2001.